



**CONNECTED**  
**NATION** SM

**Response to  
FCC Notice of Inquiry  
GN Docket No. 07- 45  
Submitted by: Connected Nation, Inc.**

**May 16, 2007**

## **BACKGROUND OF COMMENTING ORGANIZATION, CONNECTED NATION**

Connected Nation, Inc. is a national non-profit organization dedicated to closing the digital divide by increasing technology investment through its partnerships, programs and policies. Connected Nation makes technology work for previously underserved communities and markets, improving community life and economic development while enhancing markets for technology providers. Connected Nation's proven methodologies are delivering dramatic results that translate into more efficient public services and an enhanced quality of life. Connected Nation's work in Kentucky, under ConnectKentucky,<sup>1</sup> a non-profit public-private partnership of technology minded businesses, government agencies and educational entities, has been identified as a national model for the expansion of broadband infrastructure. In addition, ConnectKentucky serves as a "demonstration project" for Connected Nation, demonstrating a successful state-level approach that has provided the platform for a model that can be applied to any state. Connected Nation creates partnerships between the public and private sectors to encourage cooperation for mutually beneficial purposes – making the cost of technology expansion decrease and the demand for technology increase.

## **ISSUES FOR INQUIRY**

### **WHAT IS "ADVANCED TELECOMMUNICATIONS CAPABILITY?"**

Many technology stakeholders and policymakers believe there is a need to increase the current speed (200 kps) of "advanced telecommunication capability." As noted in the October 2006 CWA policy paper, *Speed Matters*, better and faster connections are ideal. Yet most also agree the only feasible way to facilitate speeds of 100 megabits per second in the near term for all rural American communities is to provide billions in government subsidies, which will create a network that will then need to be maintained with billions more in additional government funds. In short, much of rural America with its large expanses of low household density cannot currently support a business case for full fiber or even full wireline deployment that would provide such speeds.

However, as proven in Kentucky, creative and cost effective solutions exist for any area, if the right combination of resources are mobilized toward simultaneous deployment and adoption. In some of the very rural, low density areas, this means fixed wireless networks are the only feasible solution in the near term.

In the areas where wireless deployments have occurred, businesses are thriving, jobs are growing, community development is happening and quality of life is on the rise. Citizens now have access to broadband that enables online education, access to health

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<sup>1</sup> ConnectKentucky has been cited as a national best practice by: the US Economic Development Administration, the U.S. Government Accountability Office of Congress, the White House Office of Technology, Federal Communications Commission, Appalachian Regional Commission, USDA Rural Utilities Service, Congressional Research Service, Center for Digital Government, Southern Growth Policies Board, Communications Workers of America, Rural Telecommunications Congress and numerous states across the nation.

information, e-commerce opportunities and e-government services never before available. Many of these wireless deployments occurred as a result of Kentucky's local technology planning and demand creation efforts, which generated a business case for providers to deploy in these otherwise unserved areas.

If the threshold for broadband is increased to eclipse fixed wireless solutions, this platform would be disqualified for government grants and support, thereby leaving behind many rural areas that would otherwise be prospects for investment.

If speed tiers are established within the definition of broadband, government support and funding programs should be flexible enough to ensure that unserved areas are not placed at a disadvantage as a result of market realities.

### **IS ADVANCED TELECOMMUNICATIONS CAPABILITY BEING DEPLOYED TO ALL AMERICANS?**

Over the past few years Kentucky has emerged as a model for increasing the availability of "advanced telecommunication capability" with ConnectKentucky's implementation of the state's *Prescription for Innovation* - a comprehensive plan that calls for full broadband availability by the end of 2007; dramatically improved use of computers and the Internet; the creation of a meaningful online presence for all local communities; and the establishment of eCommunity Leadership Teams in all 120 counties. Since the program's inception in 2004, broadband availability has risen from approximately 60 percent to 93 percent of Kentucky households - this represents a 55 percent increase and an additional 518,000 households that now have access to broadband service.

Unfortunately, this level of deployment cannot be tracked for the rest of the nation primarily because the current data collection method, provider-based zip code level data, does not effectively demonstrate the gaps in broadband service. Likewise, even a more granular geographic unit based system such as nine digit zip code would be problematic on several levels:

**1. Data collection by geographic unit overstates coverage**

The zip plus four method is a data collection system based upon an artificial geographic unit. As long as providers are required to submit data within the confines of a geographic unit, the analysis will be confined to an assumption about the geographic unit as a whole. However, deployment is not limited to these boundaries. Many providers offer service to only certain parts of a nine digit zip code area. As with the traditional zip code method, one must assume that if any part of a nine digit zip is served, all of the households within the nine digit zip are served.

**2. Data on provider connections understates coverage**

The zip plus four method depends upon provider connections as opposed to provider offering. There are areas where broadband service is available or may

soon be available, but consumers are not yet subscribing. Further, there may be providers that choose not to submit data at all, as there is no incentive for them to do so. These scenarios may actually understate coverage in some areas, which would create a skewed picture of deployment and may cause resources to be spent in areas that are already served.

**3. Zip code data is not compatible with Census data**

The zip plus four method is not conducive to analysis of Census household or demographic data, as the boundaries are not compatible. Ultimately, it would create a system that allows for only limited analysis of demographic information in relation to broadband deployment, at an extremely high cost to government, universities or any other research entity.

Concerns about the current method of data collection were also raised in 2006 by the General Accounting Office (GAO), who reported that “the use of subscriber indicators at the zip-code level to imply availability, or deployment, may overstate terrestrially based deployment.” It continued:

We (the GAO) were able to check these findings for one state—Kentucky—where ConnectKentucky, a state alliance on broadband, had done an extensive analysis of its broadband deployment. ConnectKentucky officials shared data with us indicating that approximately 77 percent of households in the state had broadband access available as of mid-2005. In contrast, we used population data within all zip codes in Kentucky, along with FCC’s 477 zip code data for that state, and determined that, according to FCC’s data, 96 percent of households in Kentucky live in zip codes with broadband service at the end of 2004. Thus, based on the experience in Kentucky, it appears that FCC’s data may overstate the availability and competitive deployment of non-satellite broadband.

Upon comparison of ConnectKentucky broadband availability data with the most recent FCC report, *High Speed Services for Internet Access: Status as of June 30, 2006*, the disparities are significant:

- According to the FCC, 96 percent of Kentucky’s zip codes were served by at least one broadband provider.
- According to ConnectKentucky, only 33 percent of Kentucky’s zip codes actually had broadband available throughout the entire zip code at that time.
- According to ConnectKentucky, 65 percent of Kentucky’s zip codes had broadband available in some part of the zip code area, but large gaps still remain in these zip codes.

The underlying assumption in the FCC report is that within the 65 percent of zip codes that are partially served, each of the households in that zip code have access to some kind of broadband service. This assumption significantly overstates the actual

availability of broadband to hundreds of thousands of Kentucky residents. A data collection system at the nine digit zip code level would indeed produce a somewhat more granular picture of broadband subscribers, however, because it is based upon the same methodological assumptions as the current five digit zip code approach, it would continue to produce data that are overstated and that do not identify service gaps.

ConnectKentucky has worked with providers across the state to produce a comprehensive GIS map of broadband service statewide. This model is unique in that it maps broadband deployment not according to any geographic unit, but according to the deployment itself. This mapping at the deployment level pinpoints the most granular gaps in service, and allows for effective strategic planning and policy to fill them.

Creation of the gap identification map was accomplished through a cooperative public-private approach to data gathering whereby individual providers securely submitted proprietary deployment data to ConnectKentucky, which served as a data clearinghouse. The data was then converted to represent collective broadband coverage and gaps in service. The result was a true picture of deployment across Kentucky.

Thus, when considering the overarching goal of 100 percent access nationwide, there is a need to have sufficient and precise data on current broadband inventory to help determine the availability and perhaps more importantly, the lack of advanced telecommunications infrastructure and services. The only method for establishing an accurate picture of the gaps in broadband coverage is through a deployment level map that shows precisely where service is and is not available. This assertion is supported in Kentucky by the work of Connected Nation's state-level organization, ConnectKentucky.

#### **WHAT ACTIONS/ECONOMIC CONDITIONS ACCELERATE DEPLOYMENT OF ADVANCED TELECOMMUNICATIONS?**

- The creation of a national initiative modeled and spearheaded by a non-profit stakeholder such as Connected Nation
- A comprehensive broadband inventory
- Creating a business case for deployment in rural areas
- Incentives to encourage broadband deployment

#### **National Initiative Modeled and Spearheaded by a Non-profit Stakeholder Such as Connected Nation**

Yet another crucial economic component that will drive the deployment of and investment in advanced telecommunications services and ubiquitous service deployment is to create national legislation that encourages and helps fund public-private partnerships at a state level. Kentucky's economy has seen more than \$650 million in private telecommunications infrastructure investment since the launch of the

*Prescription for Innovation* in 2004. As a result of the public-private approach taken in Kentucky by Connected Nation and its very tactical research-based plan, the organization has been able to bring all parties to the table to ensure that Kentucky leapfrogs its previous poor technological standings. Therefore, Connected Nation advocates federal policies that:

- Provide solutions for ubiquitous broadband deployment and increased adoption by encouraging and funding public-private partnerships at a state level;
- Establish a grant program to enable each state to develop a comprehensive approach to broadband deployment while simultaneously driving broadband adoption and technology development at a local community level;
- Allow non-profit organizations that have established a partnership with state government to apply for funding to:
  - Identify and map the gaps in broadband service – those areas without broadband availability – and then work collaboratively with all providers to fill those gaps in a manner that supports their business plans and works for communities;
  - Measure and track broadband and information technology use among citizens and businesses, investigate barriers to adoption at a local level, and provide market analysis for unserved areas;
  - Develop local technology planning teams with members representing a cross section of the community, including business, telecommunication labor, K-12 education, health care, libraries, higher education, community-based organizations, local government, tourism, parks and recreation, and agriculture;
  - Equip and facilitate local technology planning teams with the tools and resources to improve technology use within each sector; and
  - Establish effective programs to improve computer use and Internet access for disenfranchised populations.

Through the work of Connected Nation, ConnectKentucky and its partners have generated successful and measurable results. Some examples include:

- ConnectKentucky and the *Prescription for Innovation* are recognized as the national leaders in technology acceleration;<sup>2</sup>
- Broadband inventory maps have been created for the entire state, promoting current coverage and allowing providers to better target unserved areas;
- Broadband availability has increased from 60 percent to 93 percent of households able to subscribe (on track to reach 100 percent by the end of 2007), representing 518,000 previously unserved households and more than 1.4 million residents that can now access broadband;
- Broadband use at home has increased 73 percent, a rate that has led the nation;
- Broadband use among Internet connected businesses rose from 65 percent to 85 percent;

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<sup>2</sup> 2006 EDA Excellence in Innovation Award: <http://www.eda.gov/NewsEvents/ExcellenceWinners06.xml> and 2006 Southern Growth Policies Board Innovator Award: <http://www.southern.org/main/innovators/2006.shtml>.

- Home computer ownership grew by 20 percent while the national average rose by approximately 4 percent;
- More than \$650 million in private capital has been invested in Kentucky (unprecedented);
- Nearly 2,000 home computers have been distributed to the homes of underprivileged Kentucky students through the No Child Left Offline program;
- eCommunity Leadership Teams have been established in every Kentucky county creating grassroots technology growth plans across nine sectors;
- More than 70 percent of Kentucky counties now operate or are in the process of constructing a meaningful web presence for e-government and online citizen services, up from about 30 percent just two years ago;
- 22,000,000+ positive media impressions covering Kentucky technology growth;

As a result of the increase in broadband availability, companies are relocating to Kentucky, entrepreneurs are developing businesses in Kentucky, and jobs are growing in Kentucky because the Commonwealth now has the technology infrastructure and an increasing technology-savvy workforce to support business growth. Over the last two years, more than 14,500 total technology jobs have been created in Kentucky<sup>3</sup>. Perhaps the most appropriate place to isolate and measure the direct employment impact of broadband expansion efforts is in the Information Technology (IT) sector. During the same two year period, in the IT sector alone, Kentucky job growth has significantly outpaced the national growth rate: 3.1 percent for Kentucky versus 0.1 percent nationally.

### **Comprehensive Broadband Inventory Assessment**

A broadband gap identification map for the United States can be accomplished through a cooperative public-private approach to data gathering whereby individual providers can securely submit proprietary deployment data to a non-profit entity that serves as a data clearinghouse. The data are then converted to represent collective broadband coverage and gaps in service. The result is a true and dynamic picture of broadband deployment across the nation.

When combined with a program to drive demand for broadband services through local technology planning and adoption programs, providers have an incentive to cooperate in the mapping process.

Further, when a true gap identification map is produced, broadband providers have additional incentive to participate to ensure their service areas are represented – not

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<sup>3</sup> Bureau of Labor Statistics (BLS) for two year period beginning January 2005 through December 2006. Includes jobs created in the following NAICS sectors: information; finance; professional, science, and technical; management; and healthcare. Sectors are comprised primarily of high tech jobs and all jobs within these sectors are “technology based”. Other sectors include additional technology jobs; however, these jobs are aggregated with other non technology jobs, such as in the manufacturing sector. As BLS does not disaggregate these jobs, they could not be included in the figure above, which results in an understatement in the reporting of technology jobs.

only to demonstrate the investments they have made, but also to help ensure that public resources are not spent on areas that are already served.

### **Creating a Business Case for Deployment in Rural Areas through Local Leadership Teams**

Typically broadband infrastructure has catered to populous areas, leaving more rural settings underserved. Besides population density, one of the factors affecting broadband deployment in rural areas has been lack of demand for broadband and other related technologies. In 2005, ConnectKentucky's preliminary research indicated that lack of awareness on the benefits of broadband, was the greatest barrier to getting more individuals online. When asked why they didn't subscribe, the top response was "I don't need broadband". This finding led to the demand driven model that ConnectKentucky employs. Providers need a business case that justifies deployment to the rural areas. This deployment is based upon answers to the following questions:

- What are the costs of building out the infrastructure?
- Will there be sufficient take rates to capitalize the build out expenses?
- Will there eventually be sufficient adoption rates to create a return on investment? How long will it take to get there?
- How well organized are the business or civil infrastructures as agents of advocacy?

These questions help providers determine whether a certain area is worth the investment. As a result, ConnectKentucky developed an eCommunity planning process to help develop a business case for providers and increase awareness for consumers. A key to encouraging investment is providing awareness and resources to local communities about how technology can impact the local area in an effort to encourage the demand for such services. Although broadband technology has become the standard for most businesses, many of the benefits of broadband go unrecognized or unrealized outside of the business sector. Connected Nation's eCommunity Strategies specializes in helping communities effectively and efficiently leverage technology. eCommunity Strategies helps individual communities evaluate their existing use of technology and identify best practices and the best means of acquiring new technology. Ultimately, the process results in a tactical technology expansion plan that provides detailed analysis of the best means of deploying new and available technology across each of the following sectors:

- Healthcare
- K-12 education
- Higher education
- Government
- Business and Industry

- Agriculture
- Libraries
- Community-based organizations
- Tourism, recreation and parks

This process has worked in Kentucky, as the eCommunity Strategies group has facilitated the most comprehensive community-based technology planning program in the country, implementing a team and a plan in each of the state's 120 counties. Now each county has a tactical strategy to address the specific challenges related to technology growth on a county-by-county basis. As a result of these reports, each county is equipped with the necessary tools needed to increase the technology infrastructure and adoption on a local and individualized level.

Evidence of the success of this process in Kentucky includes:

- AT&T (formerly BellSouth) has stated that the ConnectKentucky process expanded the company's investment in Kentucky by three times and significantly sped that deployment.
- Since 2004, broadband providers expanded service in Kentucky to approximately 518,000 previously unserved households through a mix of DSL, wireless and cable solutions. A large percentage of these households fall in Kentucky's most rural areas. Plans are in place to serve 100 percent of Kentucky counties by the end of 2007.
- ConnectKentucky has facilitated public-private partnerships with providers and government officials to leverage resources for private sector deployment through resource identification, engineering assessments, RFP development and ongoing consulting. This process is enabling broadband services for the most rural and hard-to-reach residents.

#### **WHAT ARE PATTERNS OF CONSUMER ADOPTION AND USAGE OF SERVICES UTILIZING ADVANCED TELECOMMUNICATIONS CAPABILITY?**

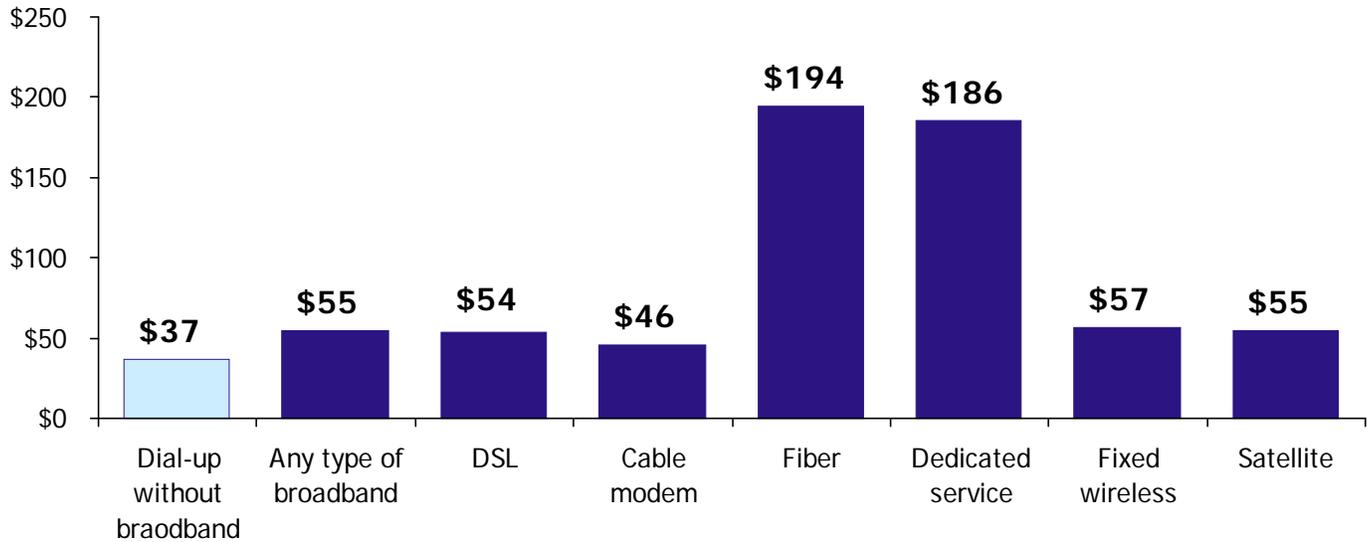
The work of Connected Nation is research driven, which provides a solid foundation for developing programs that fit the needs of each individual state and locality. Beyond accurately measuring the inventory of broadband services to increase investment, Connected Nation's research guides and directs the local planning teams and creation of relevant applications, and it offers insight for providers, policymakers and local leaders into consumers' technology adoption and usage patterns. For example, through the organization's research Connected Nation found that while industry assumed that the monthly broadband subscription fee was a primary barrier to the adoption of residential broadband, in Kentucky the lack of a home computer actually ranked higher. As a result, *No Child Left Offline* was developed as a partnership based solution to address this barrier. *No Child Left Offline* has facilitated cooperation among private partners, corporate foundations and state governments to place computers and printers into the homes and schools of disadvantaged children.

Therefore, Connected Nation feels that the best method to determine consumer adoption patterns is to conduct research that is directed at the source – consumers. Collection of adoption information through consumer surveys produces a data set that is much more robust and more useable to policymakers at a much lower cost to providers. Perhaps more importantly, consumer surveys allow for measurement of consumer satisfaction with service, which is not possible to obtain through provider data. **See attached document for Kentucky consumer adoption patterns.**

This consumer-based research can not only provide information about residential adoption patterns and usage, but it can also provide information about speeds by platform and geographic area, as well as business speeds by industry and company size. ConnectKentucky has found business and consumer surveys to be critical in collecting information about price, speed and platform data which is then combined with reliable availability and deployment data produced through the statewide broadband map. The outcome is the ability to analyze and understand, at the county level, differences in deployment and adoption in rural versus urban areas and across demographics. On the following pages are some examples of business consumer data collected by ConnectKentucky.

**Q: How much per month does your organization pay for its Internet connection?**  
(Median estimated from distribution of spending across spending brackets, and excludes respondents who don't know or refused to indicate spending.)

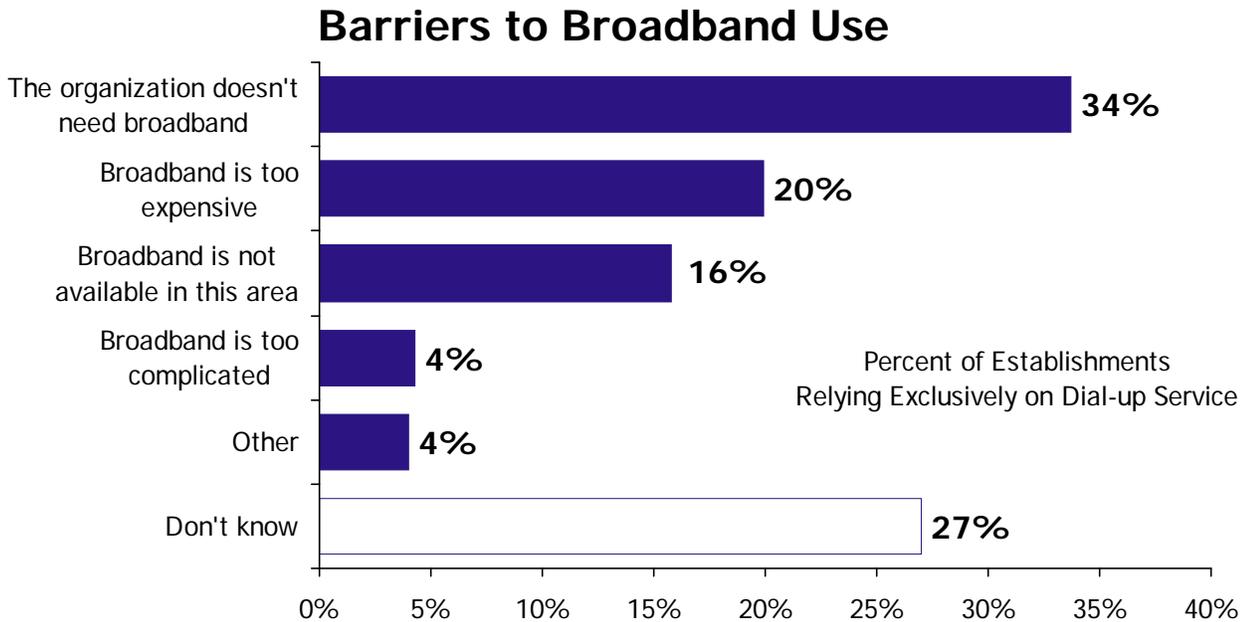
### Median Monthly Access Fees



Source: 2006 connectKentucky survey of businesses.

- The median monthly cost of service for broadband enabled businesses as a whole is \$55 per month, with lower costs reported among businesses using cable modems.
- The median cost of fiber optic or dedicated service is closer to \$200 per month.

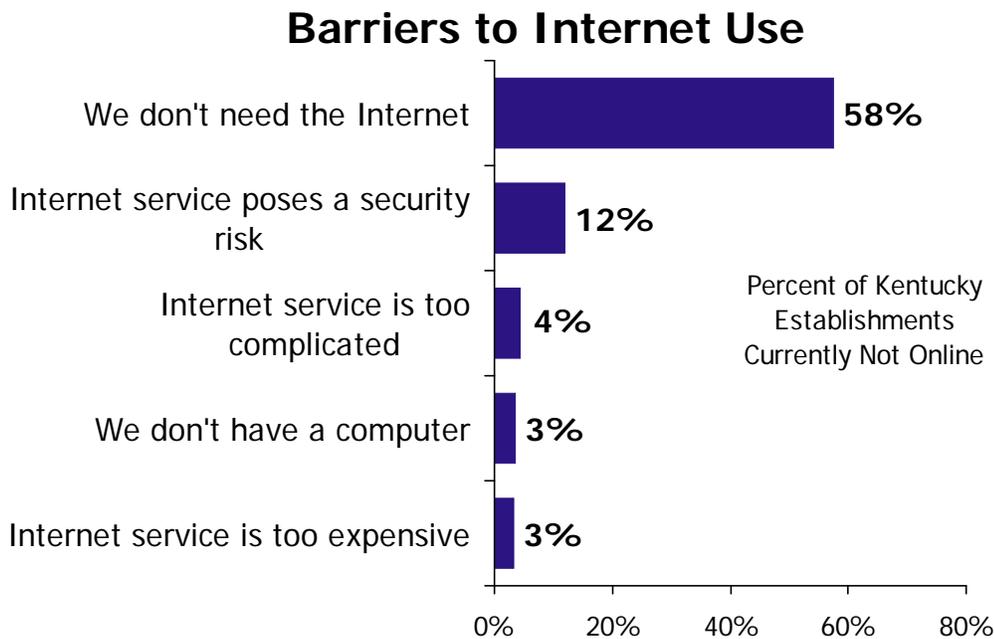
**Q: Why doesn't your organization subscribe to broadband service?** (n=53 online businesses with dial-up only access)



Source: 2006 connectkentucky survey of businesses.

- Among those businesses that rely exclusively on a dial-up connection (which now constitutes only 10 percent of Internet connected businesses), over a third say their organization doesn't need broadband, and over one quarter say they don't know why they don't subscribe.
- Cost is cited among only 20 percent of dial-up businesses.
- Local broadband availability is a problem for only 16 percent of these businesses.

**Q: Why doesn't your organization use the Internet?** (n=157 Kentucky businesses)



- The majority of businesses currently not connected to the Internet today say they do not need the Internet.
- A further 12 percent cite perceived security risks.
- Only 3 percent report Internet access is too expensive.

### **CONCLUSION**

As broadband technologies and applications continue to expand, there will be an ever increasing need to enact policies that enable solutions that are as equitable as they are innovative. After years of research, trial and error, and collaborative development of a successful strategy for broadband deployment and adoption, Connected Nation appreciates the opportunity to comment on this issue and it wishes to thank the commission for its consideration.



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## **Technology for Strong Communities and Open Markets**

Connected Nation offers valuable partnerships that enable technological and economic progress of historic proportion.

Please join Connected Nation as we close the digital divide in America.

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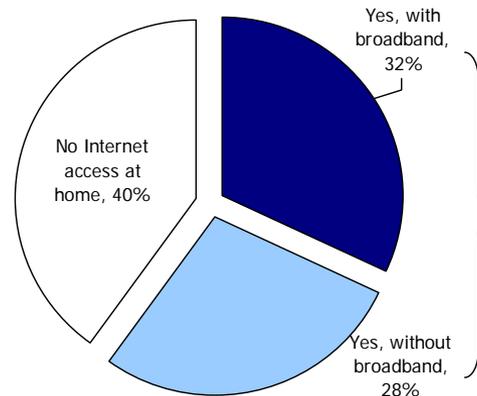
# *Summary of Results of the ConnectKentucky 2005 Technology Assessment*



# Key Broadband Statistics: Broadband Adoption & Barriers

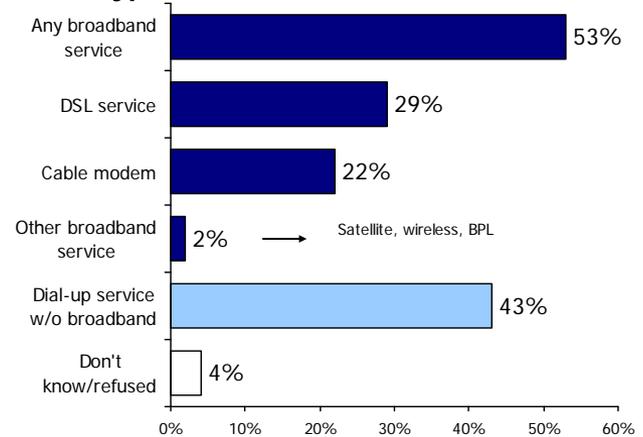
- Six out of ten adults in Kentucky report having Internet access at home.
- In absolute terms, this converts to approximately 1.9 million with access to the Internet at home.
- Over half (53%) of adults with Internet access at home have broadband, including 29% with DSL service and 22% with cable modem service.
- This converts to 32% of the adult population or one million adult residents with broadband at home.
- The leading barriers to broadband adoption among those with dial-up service are:
  - **Lack of need**, (especially among older residents)
  - **Cost** (especially among younger residents) and
  - **Availability** (especially among higher income residents and those in rural counties.)

Have Internet Access at Home



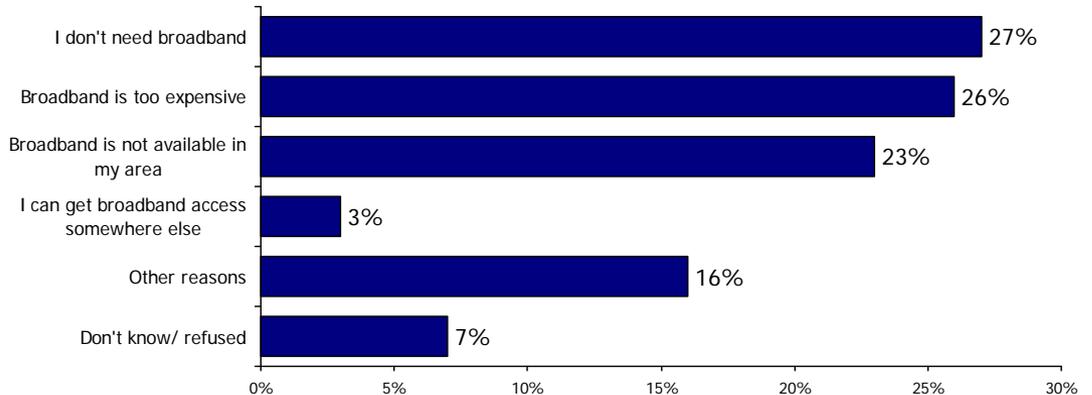
Source: 2005 ConnectKY Technology Assessment Study, n=10,842

Type of Internet Service at Home



Source: 2005 ConnectKY Technology Assessment Study, n=6,050 adults with access at home

Why don't you have broadband?

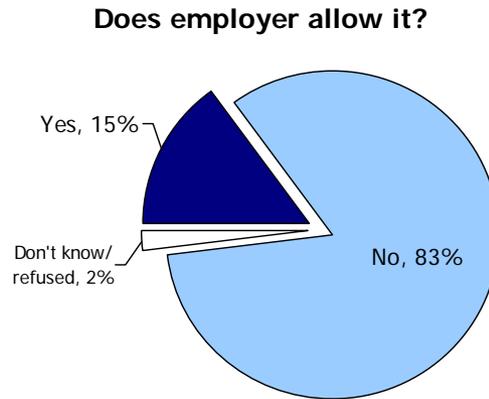


Source: 2005 ConnectKY Technology Assessment Study, n=3,179 adults with dialup access at home

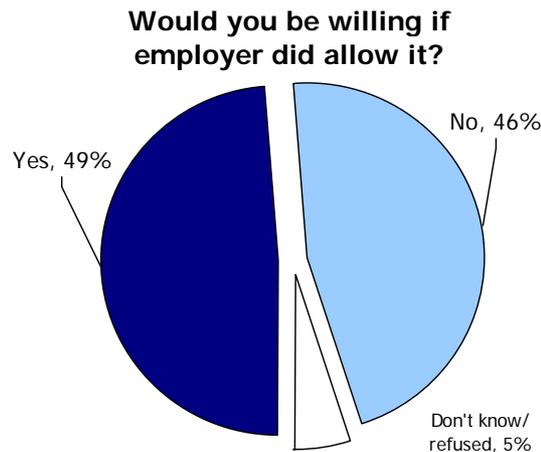


# Key Broadband Statistics: Potential for Telecommuting

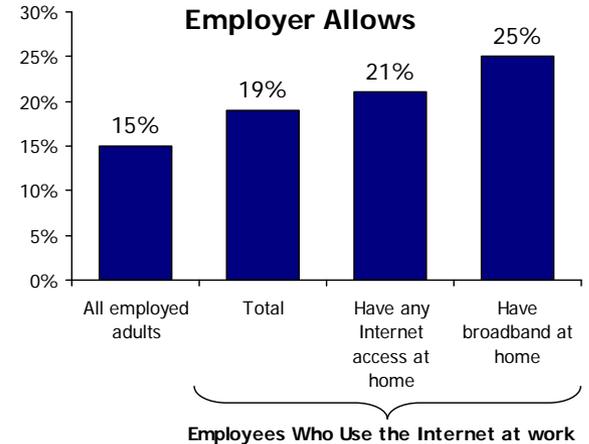
- Fifteen percent of all employed adults say their employer allows them to telecommute from home, rising to 19% of employees who use the Internet at work and 25% of employees already set up at home with a broadband connection.
- These data suggest that 112,000 workers in the state have both the permission and capability to work at home on a regular basis through a broadband Internet connection.
- Nearly half of those employees not allowed to telecommute would be willing to do so, rising to 64% of employees with a home broadband connection. The latter converts to 216,000 workers who have the means and willingness to telecommute, but lack permission.



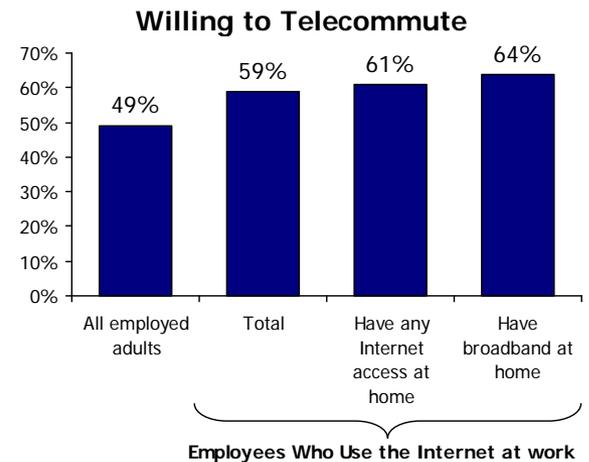
Source: 2005 ConnectKY Technology Assessment Study, n=5,808 employed adults.



Source: 2005 ConnectKY Technology Assessment Study, n=5,001 employed adults who are not allowed to telecommute.



Source: 2005 ConnectKY Technology Assessment Study

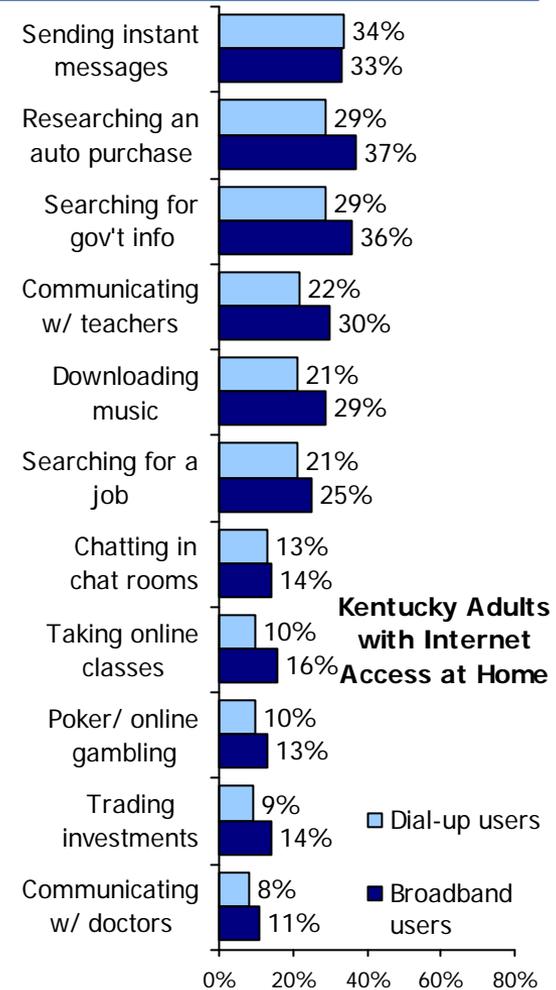


Source: 2005 ConnectKY Technology Assessment Study



# Key Broadband Statistics: Applications Used

- Most Internet activities rise in popularity among those residents with home broadband access, those under age 55, and those in more affluent households (income of \$75,000 or more).
- Home broadband is a significant factor in most activities except for:
  - Sending email
  - Instant messaging
  - Accessing chat rooms
- Men are more likely than women to engage in:
  - Online gambling
  - Researching an automobile purchase
  - Searching for government info
  - Downloading music
  - Accessing chat rooms
  - Buying and selling investments
- Women are more likely than men to search for health information online.
- Those over 55 tend to use the Internet the least of all age groups. Those 18-34 are more likely than older Internet users to go online for:
  - Research for schoolwork
  - Downloading music
  - Searching for jobs
  - Online gambling
- Those 35-54 tend to use the Internet more for:
  - Searching for health information
  - Finding government information.



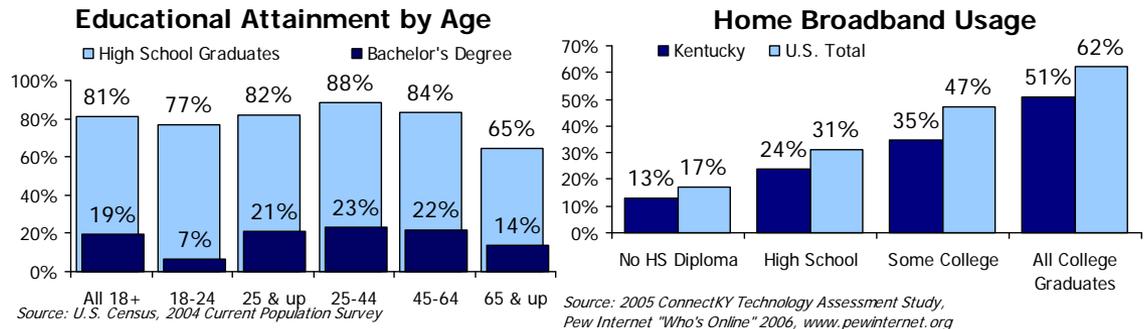
**Kentucky Adults with Internet Access at Home**

□ Dial-up users  
■ Broadband users



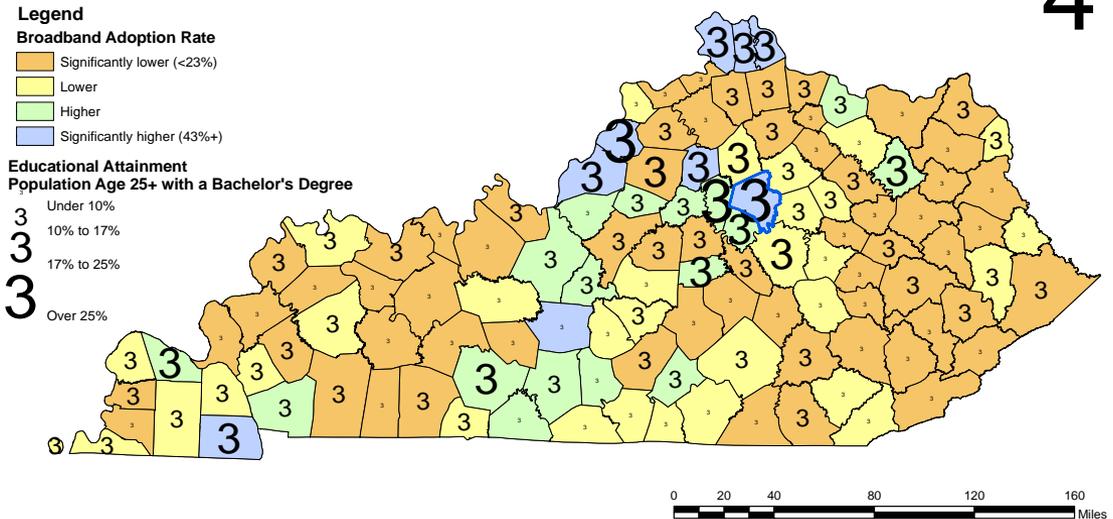
# Key Technology Statistics: by Educational Attainment

- Educational attainment levels in Kentucky have risen significantly in the last 30 years and peak among adults in the 25 to 44 age bracket, where 88% of adults have graduated from high school and 23% have a bachelor's degree.
- Educational attainment is directly related to computer and Internet usage, as well as broadband adoption.
- The attainment of a high school diploma is correlated with a significant increase in computer ownership and Internet and broadband use.
- Kentucky lags behind national averages in terms of residential broadband use, even among the most educated people.
- In general, the incidence of college graduates in a given area correlates well with incidence of broadband, as shown in the map at right.
- Education level is also a significant factor in how the Internet is used:
  - Those with college degrees use it more for research, commerce and banking.
  - Those with some college use it more for entertainment: downloading music and instant messaging.
  - Those with lower levels of education are more likely to report using it for chat rooms and gambling.



## Residential Broadband Adoption by County

Statewide: 32% adult residents have broadband Internet access at home  
17% of adults age 25+ have a college education (bachelor's degree or higher)



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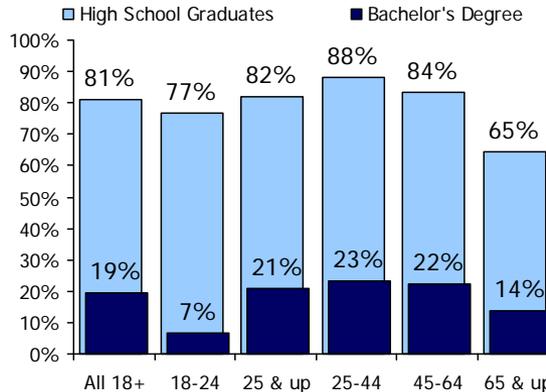
Source: ConnectKentucky County Level Technology Assessment Survey (n=10,842 statewide)  
U.S. Census Bureau, 2000 Census



# Key Technology Statistics: by Age

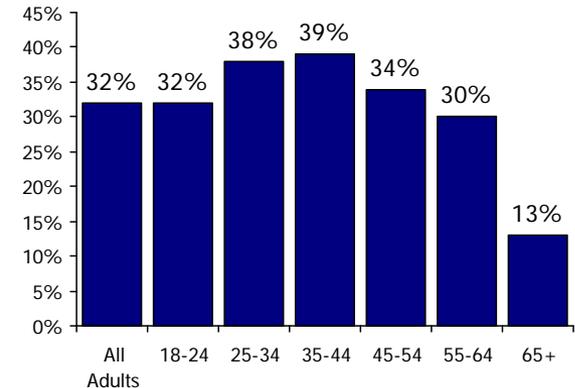
- Kentucky residents in the 65+ age bracket have a much lower proportion of high school graduates. This is important because the attainment of a high school diploma is correlated with a significant increase in computer ownership, as well as Internet and broadband use.
- Age is directly related to computer and Internet usage, as well as broadband adoption. Broadband and Internet usage both peak in the 35-44 age range and are lowest in the 65+ age bracket.
- Kentucky lags behind national averages for Internet and broadband use overall, except among seniors age 65+, where broadband adoption is the same as the national average (13%).
- For those in the 65+ age bracket, the biggest barriers to Internet access are being without a computer and a perceived lack of need. Perceived lack of need is also the largest barrier to getting seniors with dial-up service to obtain broadband.
- Age is also a significant factor in how the Internet is used. Generally,
  - The youngest residents (18-24) are more likely to use the Internet for schoolwork and entertainment.
  - Those 65 and older are less likely to use nearly all of the applications tested than younger Internet users.

**Educational Attainment by Age**



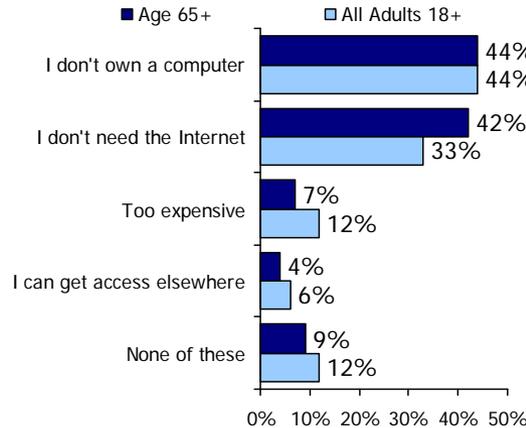
Source: U.S. Census, 2004 Current Population Survey

**Broadband Usage in KY by Age**



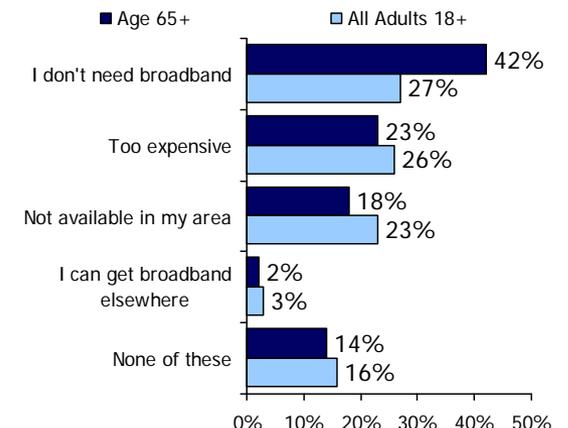
Source: 2005 ConnectKY Technology Assessment Study

**Barriers to Internet Access**



Source: 2005 ConnectKY Technology Assessment Study

**Barriers to Broadband**

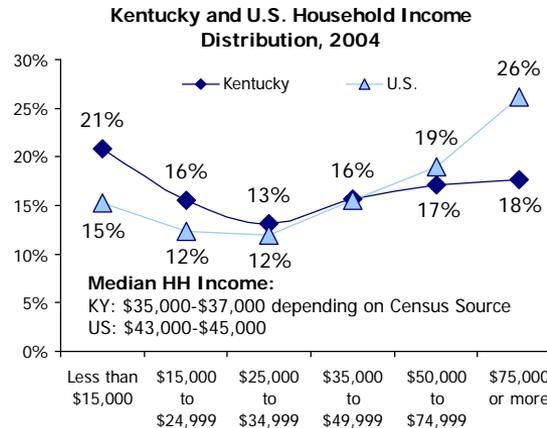


Source: 2005 ConnectKY Technology Assessment Study

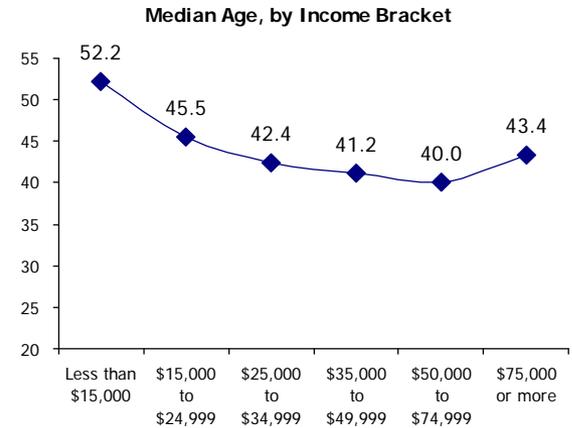


# Key Technology Statistics: by Household Income

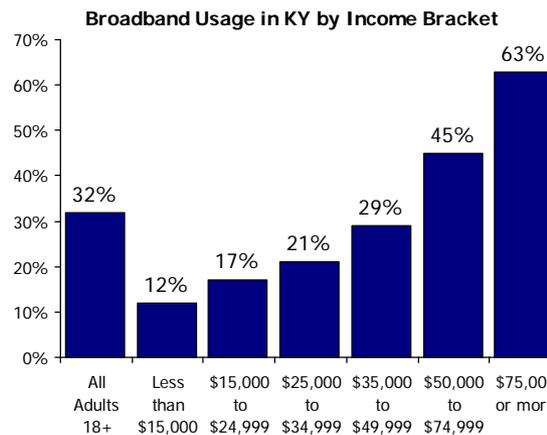
- Kentucky has a larger share of households earning under \$35,000 per year and a much smaller share earning at least \$75,000 per year, compared to the U.S. as a whole.
- Median income in Kentucky is about \$8,000 below the national average.
- In Kentucky, the lowest income bracket (under \$15,000 per year) includes a much larger proportion of senior citizens.
- In Kentucky, the most affluent households are more than five times as likely to have broadband at home as the lowest income households.
- Unlike computer presence and general Internet access, broadband access rates do not rise above the statewide average until income rises above \$50,000.
- Kentucky trails most significantly behind the national average rates of broadband adoption in the middle income bracket (\$35,000-\$49,999).
- Among current dial-up users, expense is the primary concern for low income households, but availability is the key issue for high income households.
- Income is also a significant factor in how the Internet is used with the highest earners (\$75,000 and above) using the Internet for the widest variety of uses.



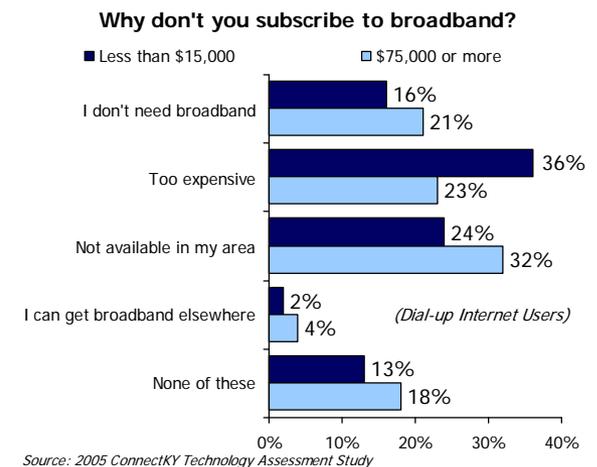
Source: U.S. Census Bureau, 2004 American Community Survey



Source: ConnectKentucky, 2005 Technology Assessment Study.



Source: 2005 ConnectKY Technology Assessment Study



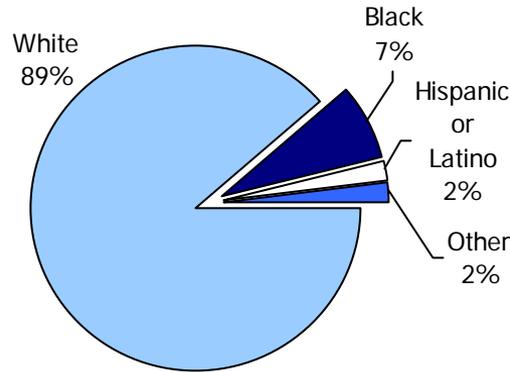
Source: 2005 ConnectKY Technology Assessment Study



# Key Technology Statistics: by Race and Ethnic Origin

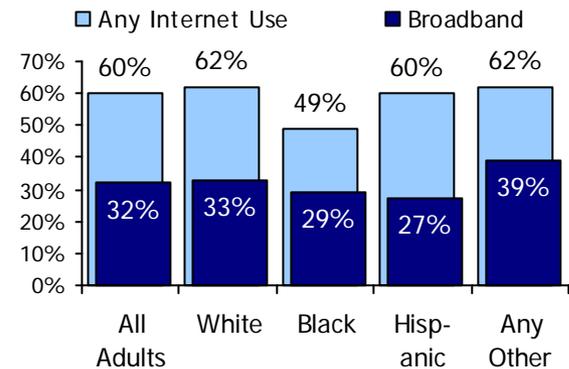
- Kentucky has fewer ethnic minorities (89% white) compared to the U.S. as a whole (68% white). However, there are over three times as many Blacks (7%) as there are those of Hispanic or Latino origin (2%).
- Fewer than half of adult African Americans in Kentucky have home Internet access, while 60% of Hispanics can access the Internet at home.
- However, there is much less disparity in current broadband adoption rates between the major ethnic groups in the state, in part because African Americans are disproportionately found in counties with greater broadband infrastructure and adoption rates.
- Still, a high proportion (49%) of African Americans on dial-up believe they do not need broadband. For Hispanic households, expense is the main concern (32%).
- More than three out of four Hispanics report having access from any location, thanks in part to higher than average access through libraries and community centers.
- White Internet users in Kentucky use the Internet for the greatest variety of commercial purposes, while African Americans are more likely than whites to use the Internet for schoolwork and job searches.

**Kentucky's Ethnic Breakdown**



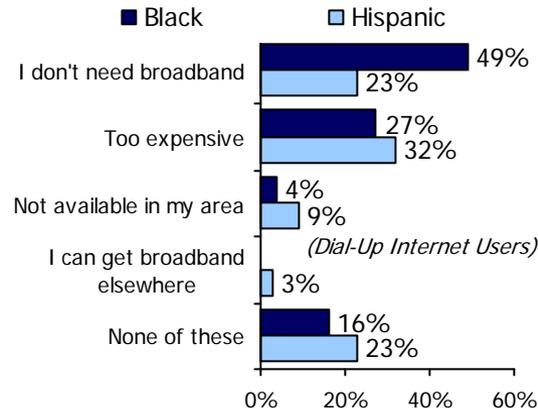
Source: U.S. Census Bureau, 2004 American Community Survey

**Residential Internet Use**



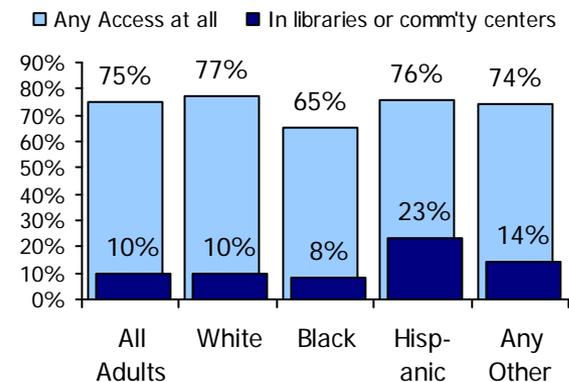
Source: 2005 ConnectKY Technology Assessment Study

**Why don't you have broadband?**



Source: 2005 ConnectKY Technology Assessment Study

**Internet Access Locations**

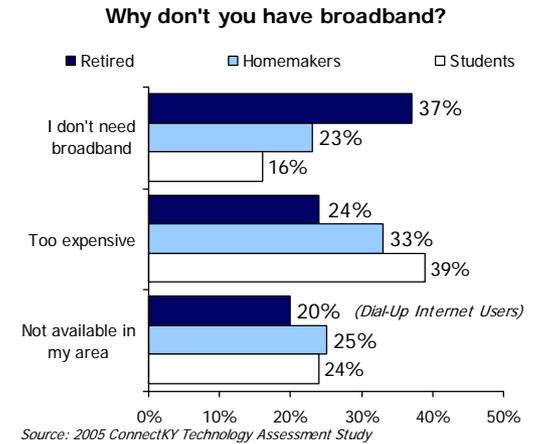
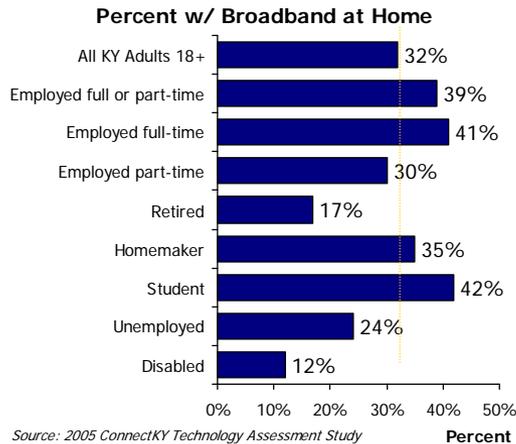


Source: 2005 ConnectKY Technology Assessment Study



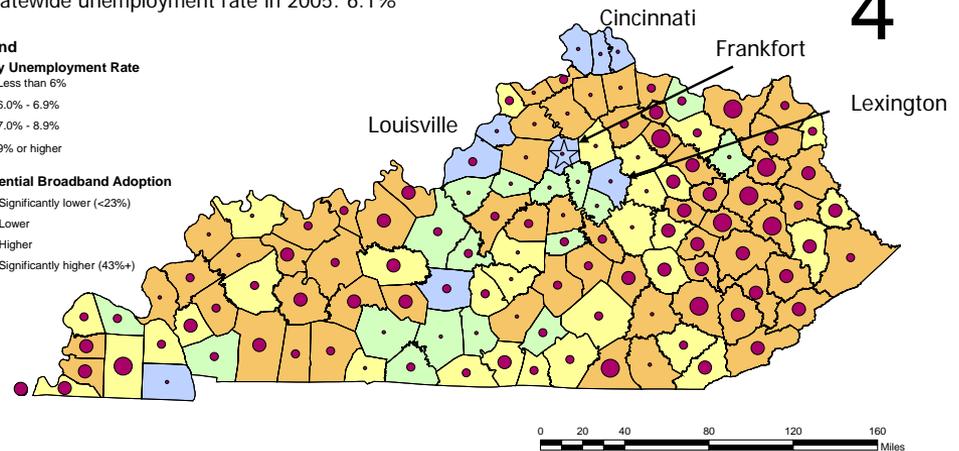
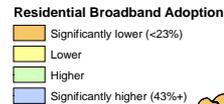
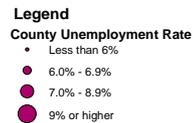
# Key Technology Statistics: by Employment Status

- 57% of Kentucky's adults are employed either full or part-time.
- The disabled, retirees and the unemployed have the lowest percentage of computers at home, as well as the lowest percentage of home Internet access.
- Students and full-time workers have the highest home broadband access (42% and 41% respectively.)
- Not having a computer is the main barrier to using the Internet at home among retirees, the unemployed and the disabled. For retirees, this is closely followed by a perceived lack of need.
- Cost is the main barrier to broadband use for homemakers and students with dial-up access, while lack of perceived need is the main barrier for retirees.
- There is a significant inverse relationship between broadband adoption and unemployment rates. Counties with high levels of broadband adoption also have low unemployment rates.
- Uses for the Internet vary between each group, with the retired, unemployed and disabled using it significantly less overall.
- However, over a third (36%) of unemployed Internet users report that they look for jobs online.



## Residential Broadband Adoption by County

Statewide: 32% adult residents have broadband Internet access at home  
 Statewide unemployment rate in 2005: 6.1%



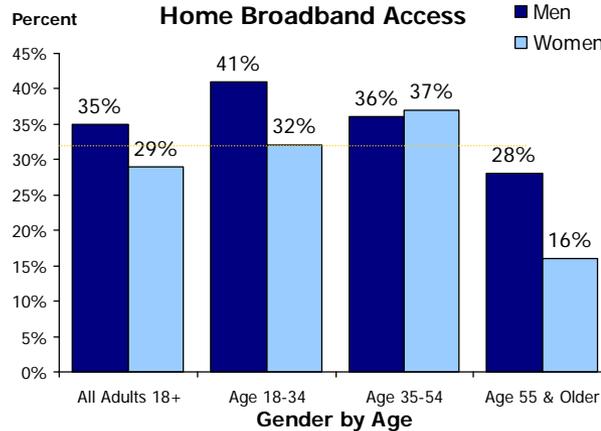
Source: ConnectKentucky County Level Technology Assessment Survey (n=10,842 statewide)  
 U.S. Bureau of Labor Statistics, 2005 Local Area Unemployment Estimates

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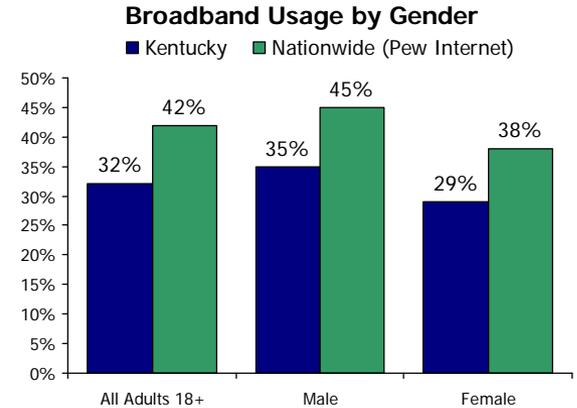


# Key Technology Statistics: by Gender

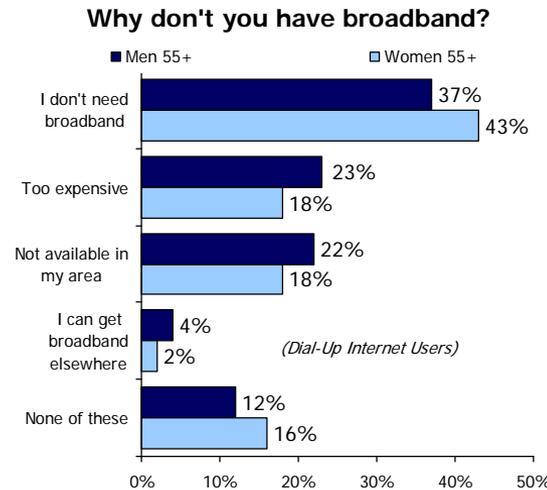
- Overall, men are significantly more likely to have broadband access at home than women, but this is driven by the gender gap among young adults 18-34 and those age 55 or higher. Broadband access for women peaks in the 35-54 age bracket, while for men broadband access continually declines with increasing age.
- Although Kentucky lags behind the national rates of residential broadband access reported by Pew Internet, the gender pattern is similar, with men more likely than women to have broadband access at home.
- For older women, lack of a computer is the primary reason for not accessing the Internet, while for men, it is a perceived lack of need.
- For both sexes, the main barrier to broadband adoption among those using dial-up Internet services is a perceived lack of need.
- Women (especially those age 35+) are significantly more likely than men to search for health and medical information online.
- In the younger age ranges, men are significantly more likely than women to use the Internet for entertainment related applications, such as music, chat and gambling.



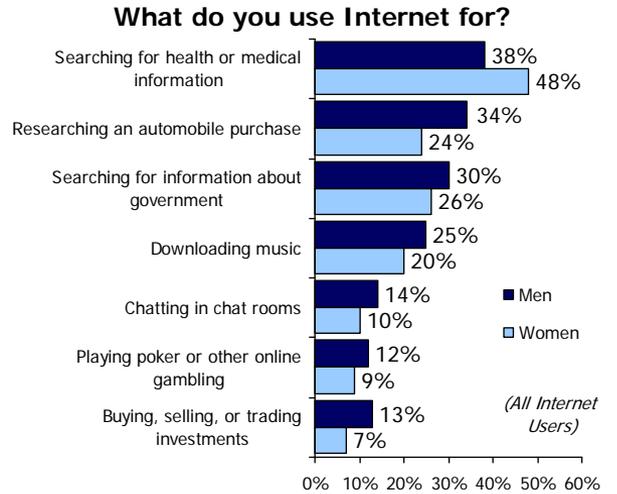
Source: 2005 ConnectKY Technology Assessment Study



Source: 2005 ConnectKY Technology Assessment Study and "Home Broadband Adoption" www.pewinternet.org



Source: 2005 ConnectKY Technology Assessment Study

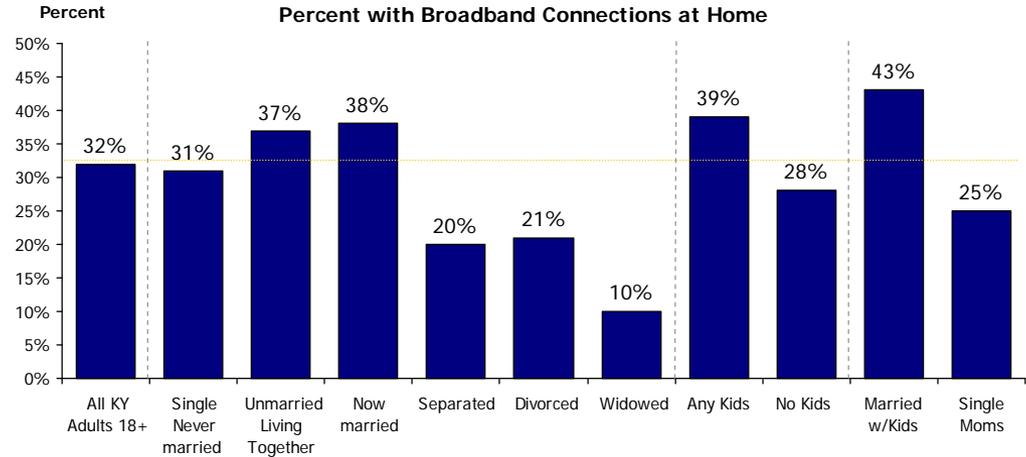


Source: 2005 ConnectKY Technology Assessment Study

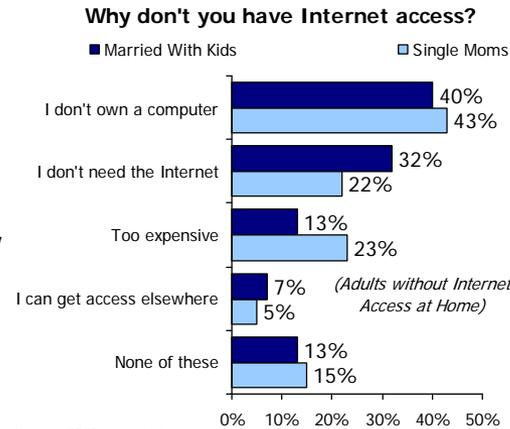


# Key Technology Statistics: by Marital & Family Status

- Family status and presence of children is highly predictive of all key household technology adoption indicators: presence of computers, Internet access and broadband Internet access to the home.
- These indicators rise significantly among couples living together (whether married or unmarried) and adults with children under age 18 living in the home.
- However, just one quarter of single mothers surveyed have broadband, compared to 43% of married adults with children.
- While lack of a computer is the main barrier to having Internet access at home for both married couples with children and single mothers, a significantly higher share of single mothers say the Internet is too expensive.
- Expense is also the leading barrier to greater broadband adoption for both married couples with children and single mothers. However, availability is a stronger barrier among married couples with children, suggesting that rural families who could otherwise afford broadband services are not being served with the present broadband infrastructure.
- Single mothers are significantly more likely than married couples to rely on access outside the home, especially public access through libraries or community centers, the homes of others and school.
- Presence of children is correlated with significantly higher use of nearly all Internet applications, although single moms tend to use the Internet more for chatting, instant messaging, downloading music and searching for jobs.

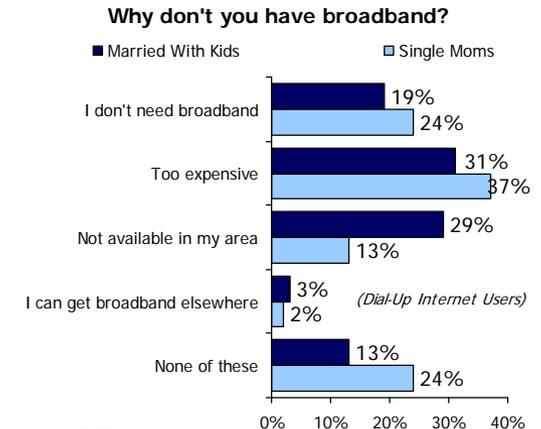


Source: 2005 ConnectKY Technology Assessment Study



Source: 2005 ConnectKY Technology Assessment Study

## Family Status



Source: 2005 ConnectKY Technology Assessment Study



## Methodology

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- Data were collected by telephone and through live computer assisted interviews from a statewide random digit dial (RDD) sample. 10,842 households were contacted between October 12 and December 2, 2005.
    - This research was designed to measure consumer technology indicators at the county level for all 120 counties in the state. Approximately 90 interviews were completed in each county.
  - The questionnaire screened to include only adults age 18 or older, with quotas set by gender and age to ensure adequate representation of all adults in each county in the state.
  - Weights were applied to each county's survey sample to match the most recent population Census estimates by age and gender.
    - Additional weights applied to set each county's representation in proportion to the share of the state's adult population living there.
  - Sampling error:
    - Each county (n= $\sim$ 90):  $\pm 10.4\%$  at the 95% level of confidence.
    - Statewide, full sample (n=10,842):  $\pm 0.9\%$  at the 95% level of confidence.
    - Statewide control sample (n=400):  $\pm 4.9\%$  at the 95% level of confidence.
-



# State Sample Profile (n=10,842)

<b>Gender:</b>		<b>Employment Status:</b>	
Male	48%	Employed full or part time	57%
Female	52%	Retired	18%
<b>Age:</b>		Homemaker not employed outside home	7%
18 to 24	10%	Student not working for wages	2%
25 to 34	21%	Unemployed, disability, other	13%
35 to 44	18%	No answer/refused	3%
45 to 54	21%	<b>Educational Attainment:</b>	
55 to 64	14%	Less than high school	14%
65 or older	16%	High school graduate	32%
Mean age (years)	46.2	Some college	24%
Median age (years)	45.3	College graduate or higher	26%
<b>Region of the State:</b>		No answer /refused	4%
North Central	44%	<b>Household Income:</b>	
Eastern KY	27%	Under \$25,000	23%
South Central KY	17%	\$25,000 to \$49,999	24%
Western KY	12%	\$50,000 to \$74,999	14%
<b>Marital Status:</b>		\$75,000 or higher	16%
Single, never married	15%	No answer/ refused	23%
Married or living in partnership	62%	<b>Race:</b>	
Separated or divorced	13%	White	85%
Widowed	8%	Black	7%
Refused to say	2%	Any other	3%
<b>Any children under age 18 in household</b>	38%	Refused	5%
<b>Average household size (# of persons)</b>	2.9	<b>Of Hispanic origin or descent</b>	3%



**The County Level Technology Assessment Project is funded by ConnectKentucky - an alliance of technology-minded businesses, government entities, universities and economic development organizations working together to accelerate technology in the Commonwealth.**

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